| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/898,804 | 07/03/2001 | Sebastien Rosel | 5974/88 | 3210 |

27383          7590          12/03/2004

CLIFFORD CHANCE US LLP
31 WEST 52ND STREET
NEW YORK, NY 10019-6131

| EXAMINER |
|---|
| BETZ, BLAKE E |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2672 | 6 |

DATE MAILED: 12/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | Application No. | | Applicant(s) | |
|---|---|---|---|---|
| **Office Action Summary** | 09/898,804 | | ROSEL ET AL. | |
| | Examiner | | Art Unit | |
| | Blake E. Betz | | 2672 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL**.     2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) <u>1 - 46</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) <u>37-46</u> is/are allowed.

6) ☒ Claim(s) <u>1 - 3, 5, 19 - 21, and 23</u> is/are rejected.

7) ☒ Claim(s) <u>4, 6 - 18, 22, and 24 - 36</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All    b) ☐ Some *   c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

# DETAILED ACTION

## *Drawings*

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "30" has been used to designate both a curvature envelope in Figure 2 and a continuity tag in Figure 4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to because portions of the following Figures are too dark to view. The writing in element 30 of Figure 4, element 38 of Figure 6, element 42 of Figure 10, and elements 38 and 42 of Figure 12 is illegible due to dark shading of the area enclosed. Figures 5, 7, 9, 11, and 13 are shaded so dark that the drawings are obscured. Portions of Figure 14 are shaded too dark for visibility. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing

should not be labeled as "amended." If a drawing figure is to be canceled, the

appropriate figure must be removed from the replacement sheet, and where necessary,

the remaining figures must be renumbered and appropriate changes made to the brief

description of the several views of the drawings for consistency. Additional replacement

sheets may be necessary to show the renumbering of the remaining figures. The

replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as

per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the

changes are not accepted by the examiner, the applicant will be notified and informed of

any required corrective action in the next Office action. The objection to the drawings

will not be held in abeyance.

### Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 3, 5, 19 – 21, and 23 are rejected under 35 U.S.C. 102(e) as being

anticipated by U.S. Pat. No. 6,268,871 to Rice et al.

Rice fully discloses the method wherein indicating curve connection continuity

information in a graphical design system comprises the steps of: receiving a definition

of a first curve and a second curve, the first and second curves substantially meeting at

a junction point; displaying the first and second curves on a display device; determining

a G2 through Gn continuity value between the first and second curves at the junction

point, n ≥ 3; and displaying at least one Gm tag indicating the value of Gm continuity, 2

≤ m ≤ n. The method of Rice teaches of generating a curve for computer graphics

through points such that a user can specify an arbitrary degree of geometric continuity

for the curve through a given point. Column 3, lines 63 – 67 states, "The essence of

geometric continuity of degree c at a point is that, within a re-parameterization of one

curve for the other, the parametric polynomial functions for the two curves have the

same derivatives of degrees 0 through c at that point." Figures 3a – 3d teach of the

different characteristics of continuity between two curves meeting at a point. Column 2,

lines 37 – 40 states, "A blended curve can be constructed that intersects constraint

curves, surfaces, and clouds of points, and matches, to a defined order of geometric

continuity, their curvature at the intersections." Thus, the method of Rice receives a

definition of a first curve from a user to intersect a defined constraint curve at a junction

point. Column 2, lines 5 – 6 states, "The method may include displaying the

constructed curve." Column 11, lines 26 – 17 states, "Referring to FIG. 14, a computer

system 200 for generating a blended curve includes a CPU 202, a display 204." Thus,

the curve generated by the continuation of the first and second curves are displayed on

a display device. The method of Rice generates a curve through a point with continuity

constraints ranging from G0 to G3 as given by a user. Therefore, if a user specifies a

G2 or G3 continuity constraint for a generated curve at a point, the generated curve will

be determined to have the specified continuity between the portion of the curve

approaching the point and the portion of the curve leaving the point. The method of

Rice also teaches of displaying a tag to indicate the determined value of continuity.

Column 12, lines 11 – 17 states, "The tangent scale handle 310 allows adjustment of

the tangent magnitude of the constraint point 12. Dragging tangent scale handle 310

left or right (or up or down) interactively increases or decreases the tangent scale. As

with any of the other conditions, the tangent scale value can be keyed in as well. A

larger tangent scale value increases the flatness of the curve at the constraint point."

Lines 51 – 60 states, "Scale of curvature handle (a small circle) 316 appears if the

geometric continuity of constraint point 12 is set to G2 or higher: dragging scale of

curvature handle 316 left or right (or up or down) from constraint point 12 increases or

decreases required curvature. Similarly, scale of rate of curvature handle (a second

smaller circle) 318 appears if the geometric continuity of constraint point 12 is set to G3

or higher: dragging scale of rate of curvature handle 316 left or right (or up or down)

from constraint point 12 increases or decreases the required rate of change of

curvature." Thus, different tags are displayed in association with the generated curve

and the point to indicate the G1, G2, and G3 value of continuity. In Figure 16, element

310 shows the gag to indicate G1 continuity, element 316 shows the tag to indicate G2

continuity, and element 318 shows the tag to indicate G3 continuity.

Claims 19 – 20 and 23 are disclosed by Rice wherein the system of Rice

comprises a design editor, a display and a storage area containing a graphical model

having first and second curves substantially meeting at a junction point. The system of

Rice includes the input of a user to create and modify curves to be displayed on a

display device. Thus, the system of Rice is considered to comprise a design editor to

create and edit a display. Column 2, lines 7 – 16 states, "In general, in another aspect,

the invention features a method of computer generation of a curve through points

including accepting positions of the points, accepting a geometric continuity condition

for at least one of the points, constructing the curve through the points using a least

squares approximation, wherein the least squares approximation uses control vertices

of the constructed curve as variables, the curve obeying the geometric continuity

condition, storing the constructed curve in a memory, and displaying the constructed

curve." Thus, the system of Rice includes a storage area containing a graphical model

having a curve generated from curves substantially meeting at a junction point. The

system of Rice comprises of determining a G2 through Gn continuity value between the

first and second curves at the junction point, $n \geq 3$; and displaying a Gm tag in

conjunction with the curves on a display indicating the value of Gm continuity, $2 \leq m \leq n$.

The system of Rice teaches of generating a curve for computer graphics through points

such that a user can specify an arbitrary degree of geometric continuity for the curve

through a given point. Column 2, lines 37 – 40 states, "A blended curve can be

constructed that intersects constraint curves, surfaces, and clouds of points, and

matches, to a defined order of geometric continuity, their curvature at the intersections."

Thus, the system of Rice receives a definition of a first curve from a user to intersect a

defined constraint curve at a junction point. The system of Rice generates a curve

through a point with continuity constraints ranging from G0 to G3 as given by a user.

Therefore, if a user specifies a G2 or G3 continuity constraint for a generated curve at a

point, the generated curve will be determined to have the specified continuity between

the portion of the curve approaching the point and the portion of the curve leaving the

point.  Column 2, lines 5 – 6 states, "The method may include displaying the

constructed curve."  Column 11, lines 26 – 17 states, "Referring to FIG. 14, a computer

system 200 for generating a blended curve includes a CPU 202, a display 204."  Thus,

the curve generated by the continuation of the first and second curves are displayed on

a display device.  Column 11, lines 40 – 43 states, "Referring to FIGS. 15 and 16, user

interaction tools 300 and 302 may be displayed on display 204 at an active constraint

point 12 to allow a user to conveniently set a number of constraint point parameters."

Figure 16 shows elements 310, 316, and 318 used to specify the value of G1, G2, and

G3 continuity, respectively, in conjunction with a generated curve and an intersection

point.

### *Allowable Subject Matter*

Claims 37 – 46 are allowed.  None of the prior art teaches of the method in claim

37 of displaying a G2 tag in association with a junction point indicating the value of G2

continuity, the G2 tag being in a first format if the value of G2 continuity is greater than a

predefined G2 value and otherwise being in a second format; and if the value of G1

continuity is not greater than a predefined G1 value, displaying a G3 tag being in the

first format if the value of G3 continuity is greater than a predefined G3 value and

otherwise being in the second format.  None of the prior art teaches of the system of

claim 43 wherein a curve connection analyzer is configured for a specified pair of curves

lying on a first and second surface and meeting at a junction point lying on the intersection edge to determine G2 through Gn continuity value between the first and second curves at the junction point, $n \geq 3$; and signal the display system to display in conjunction with a display of the first and second surfaces at least one gm tag indicating the value of Gm continuity, $2 \leq m \leq n$. None of the prior art teaches of the method of claim 39 wherein at least one cutting plane is specified that intersects the first and second surface.

Claims 4, 6 – 18, 22, and 24 - 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. None of the prior art teaches of the method of claim 9 wherein the G2 tag is displayed when a value of G1 continuity between the first and second curves at the junction point is less than a predefined G1 value. None of the prior art teaches of the method of claim 13 and the system of claim 31 wherein the G3 tag is displayed when a value of G1 continuity between the first and second curves at the junction point is less than a predefined G1 value. None of the prior art teaches of the method of claim 17 and the system of claim 35 wherein at least one cutting plane is specified that intersects the first and second surface.

### Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patens are cited to further show the state of the art with respect to analysis and display of curve connection quality:

U.S. Pat. No. 6,639,592 to Dayanand et al.

U.S. Pat. No. 5,619,625 to Konno et al.

U.S. Pat. No. 6,256,039 to Krishnamurthy

U.S. Pat. No. 5,459,821 to Kuriyama et al.

U.S. Pat. No. 6,441,823 to Ananya

U.S. Pat. No. 5,636,338 to Moreton

U.S. Pat. No. 5,422,990 to Siverbrook et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blake E. Betz whose telephone number is (703) 605-4584. The examiner can normally be reached on 7:30 - 4:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on (703) 305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BB

BB  11/18/04

RICHARD HJERPE        11/24/04
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600